

SEQUENCE LISTING

<110> Allen, Steve
Beckles, Diane M.
Butler, Karla
Pearlstein, Rich

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<212> DNA

<213> Triticum aestivum

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 <213> Triticum aestivum

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 35 40 45

 Glu Gly Gly Met Asp Val Phe Ser Arg Gly Tyr Glu Lys Phe Gly Phe
 50 55 60

 Met Arg Ser Ala Glu Gly Ile Thr Tyr Arg Glu Trp Ala Pro Gly Ala
 65 70 75 80

 Asp Ser Ala Ala Leu Val Gly Asp Phe Asn Asn Trp Asp Pro Asn Ala
 85 90 95

 Asp His Met Ser Lys Asn Asp Leu Gly Val Trp Glu Ile Phe Leu Pro
 100 105 110

 Asn Asn Ala Asp Gly Ser Pro Pro Ile Pro His Gly Ser Arg Val Lys
 115 120 125

 Val Arg Met Asp Thr Pro Ser Gly Ile Lys Asp Ser Ile Pro Ala Trp
 130 135 140

 Ile Lys Tyr Ser Val Gln Thr Pro Gly Asp Ile Pro Tyr Asn Gly Ile
 145 150 155 160

 Tyr Tyr Asp Pro Pro Glu Glu Lys Tyr Val Phe Lys His Pro Gln
 165 170 175

 Pro Lys Arg Pro Lys Ser Leu Arg Ile Tyr Glu Thr His Val Gly Met
 180 185 190

 Ser Ser Pro Glu Pro Lys Ile Asn Thr Tyr Ala Asn Phe Arg Asp Glu
 195 200 205

 Val Leu Pro Arg Ile Lys Arg Leu Gly Tyr Asn Ala Val Gln Ile Met
 210 215 220

Ala Ile Gln Glu His Ser Tyr Tyr Gly Ser Phe Gly Tyr His Val Thr
 225 230 235 240
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 245 250 255
 Ser Leu Ile Asp Arg Ala His Glu Leu Gly Leu Val Val Leu Met Asp
 260 265 270
 Val Val His Ser His Ala Ser Asn Asn Thr Leu Asp Gly Leu Asn Gly
 275 280 285
 Phe Asp Gly Thr Asp Thr His Tyr Phe His Gly Gly Ser Arg Gly His
 290 295 300
 His Trp Met Trp Asp Ser Arg Val Phe Asn Tyr Gly Asn Lys Glu Val
 305 310 315 320
 Ile Arg Phe Leu Leu Ser Asn Ala Arg Trp Trp Leu Glu Glu Tyr Lys
 325 330 335
 Phe Asp Gly Phe Arg Phe Asp Gly Ala Thr Ser Met Met Tyr Thr His
 340 345 350
 His Gly Leu Gln Val Thr Phe Thr Gly Ser Tyr His Glu Tyr Phe Gly
 355 360 365
 Phe Ala Thr Asp Val Asp Ala Val Val Tyr Leu Met Leu Met Asn Asp
 370 375 380
 Leu Ile His Gly Phe Tyr Pro Glu Ala Val Thr Ile Gly Glu Asp Val
 385 390 395 400
 Ser Gly Met Pro Thr Phe Ala Leu Pro Val Gln Val Gly Gly Val Gly
 405 410 415
 Phe Asp Tyr Arg Leu His Met Ala Val Ala Asp Lys Trp Ile Glu Leu
 420 425 430
 Leu Lys Gly Asn Asp Glu Ala Trp Glu Met Gly Asn Ile Val His Thr
 435 440 445
 Leu Thr Asn Arg Arg Trp Leu Glu Lys Cys Val Thr Tyr Ala Glu Ser
 450 455 460
 His Asp Gln Ala Leu Val Gly Asp Lys Thr Ile Ala Phe Trp Leu Met
 465 470 475 480
 Asp Lys Asp Met Tyr Asp Phe Met Ala Leu Asn Gly Pro Ser Thr Pro
 485 490 495
 Asn Ile Asp Arg Gly Ile Ala Leu His Lys Met Ile Arg Leu Ile Thr
 500 505 510
 Met Gly Leu Gly Gly Glu Gly Tyr Leu Asn Phe Met Gly Asn Glu Phe
 515 520 525
 Gly His Pro Glu Trp Ile Asp Phe Pro Arg Gly Pro Gln Val Leu Pro
 530 535 540

Ser Gly Lys Phe Ile Pro Gly Asn Asn Asn Ser Tyr Asp Lys Cys Arg
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 Arg Arg Phe Asp Leu Gly Asp Ala Glu Phe Leu Arg Tyr His Gly Met
 565 570 575
 Gln Gln Phe Asp Gln Ala Met Gln His Leu Glu Glu Lys Tyr Gly Phe
 580 585 590
 Met Thr Ser Asp His Gln Tyr Val Ser Arg Lys His Glu Glu Asp Lys
 595 600 605
 Val Ile Val Phe Glu Lys Gly Asp Leu Val Phe Val Phe Asn Phe His
 610 615 620
 Trp Ser Ser Ser Tyr Phe Asp Tyr Arg Val Gly Cys Leu Lys Pro Gly
 625 630 635 640
 Lys Tyr Lys Val Val Leu Asp Ser Asp Ala Gly Leu Phe Gly Gly Phe
 645 650 655
 Gly Arg Ile His His Thr Ala Glu His Val Thr Ser Asp Cys Gln His
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 Ala Arg Pro Ser Ala Pro Arg Ser Gly Gly Ala Glu Arg Arg Gly Arg
 35 40 45
 Gly Val Glu Leu Gln Ser Pro Ser Leu Leu Phe Gly Arg Asn Lys Gly
 50 55 60
 Thr Arg Ser Pro Arg Ala Val Gly Val Gly Gly Ser Gly Trp Arg Val
 65 70 75 80
 Val Met Arg Ala Gly Gly Pro Ser Gly Glu Val Met Ile Pro Asp Gly
 85 90 95
 Gly Ser Gly Gly Thr Pro Pro Ser Ile Asp Gly Pro Val Gln Phe Asp
 100 105 110
 Ser Asp Asp Leu Lys Val Pro Phe Ile Asp Asp Glu Thr Ser Leu Gln
 115 120 125

Asp Gly Gly Glu Asp Ser Ile Trp Ser Ser Glu Thr Asn Gln Val Ser
 130 135 140
 Glu Glu Ile Asp Ala Glu Asp Thr Ser Arg Met Asp Lys Glu Ser Ser
 145 150 155 160
 Thr Arg Glu Lys Leu Arg Ile Leu Pro Pro Pro Gly Asn Gly Gln Gln
 165 170 175
 Ile Tyr Glu Ile Asp Pro Thr Leu Arg Asp Phe Lys Tyr His Leu Glu
 180 185 190
 Tyr Arg Tyr Ser Leu Tyr Arg Arg Ile Arg Ser Asp Ile Asp Glu His
 195 200 205
 Glu Gly Gly Met Asp Val Phe Ser Arg Gly Tyr Glu Lys Phe Gly Phe
 210 215 220
 Met Arg Ser Ala Glu Gly Ile Thr Tyr Arg Glu Trp Ala Pro Gly Ala
 225 230 235 240
 Asp Ser Ala Ala Leu Val Gly Asp Phe Asn Asn Trp Asp Pro Asn Ala
 245 250 255
 Asp His Met Ser Lys Asn Asp Leu Gly Val Trp Glu Ile Phe Leu Pro
 260 265 270
 Asn Asn Ala Asp Gly Ser Pro Pro Ile Pro His Gly Ser Arg Val Lys
 275 280 285
 Val Arg Met Asp Thr Pro Ser Gly Ile Lys Asp Ser Ile Pro Ala Trp
 290 295 300
 Ile Lys Tyr Ser Val Gln Thr Pro Gly Asp Ile Pro Tyr Asn Gly Ile
 305 310 315 320
 Tyr Tyr Asp Pro Pro Glu Glu Lys Tyr Val Phe Lys His Pro Gln
 325 330 335
 Pro Lys Arg Pro Lys Ser Leu Arg Ile Tyr Glu Thr His Val Gly Met
 340 345 350
 Ser Ser Pro Glu Pro Lys Ile Asn Thr Tyr Ala Asn Phe Arg Asp Glu
 355 360 365
 Val Leu Pro Arg Ile Lys Arg Leu Gly Tyr Asn Ala Val Gln Ile Met
 370 375 380
 Ala Ile Gln Glu His Ser Tyr Tyr Gly Ser Phe Gly Tyr His Val Thr
 385 390 395 400
 Asn Phe Phe Ala Pro Ser Ser Arg Phe Gly Ser Pro Glu Asp Leu Lys
 405 410 415
 Ser Leu Ile Asp Arg Ala His Glu Leu Gly Leu Val Val Leu Met Asp
 420 425 430
 Val Val His Ser His Ala Ser Asn Asn Thr Leu Asp Gly Leu Asn Gly
 435 440 445

Phe Asp Gly Thr Asp Thr His Tyr Phe His Gly Gly Ser Arg Gly His
450 455 460

His Trp Met Trp Asp Ser Arg Val Phe Asn Tyr Gly Asn Lys Glu Val
465 470 475 480

Ile Arg Phe Leu Leu Ser Asn Ala Arg Trp Trp Leu Glu Glu Tyr Lys
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Phe Asp Gly Phe Arg Phe Asp Gly Ala Thr Ser Met Met Tyr Thr His
500 505 510

His Gly Leu Gln Val Thr Phe Thr Gly Ser Tyr His Glu Tyr Phe Gly
515 520 525

Phe Ala Thr Asp Val Asp Ala Val Val Tyr Leu Met Leu Met Asn Asp
530 535 540

Leu Ile His Gly Phe Tyr Pro Glu Ala Val Thr Ile Gly Glu Asp Val
545 550 555 560

Ser Gly Met Pro Thr Phe Ala Leu Pro Val Gln Val Gly Gly Val Gly
565 570 575

Phe Asp Tyr Arg Leu His Met Ala Val Ala Asp Lys Trp Ile Glu Leu
580 585 590

Leu Lys Gly Asn Asp Glu Ala Trp Glu Met Gly Asn Ile Val His Thr
595 600 605

Leu Thr Asn Arg Arg Trp Leu Glu Lys Cys Val Thr Tyr Ala Glu Ser
610 615 620

His Asp Gln Ala Leu Val Gly Asp Lys Thr Ile Ala Phe Trp Leu Met
625 630 635 640

Asp Lys Asp Met Tyr Asp Phe Met Ala Leu Asn Gly Pro Ser Thr Pro
645 650 655

Asn Ile Asp Arg Gly Ile Ala Leu His Lys Met Ile Arg Leu Ile Thr
660 665 670

Met Gly Leu Gly Gly Glu Gly Tyr Leu Asn Phe Met Gly Asn Glu Phe
675 680 685

Gly His Pro Glu Trp Ile Asp Phe Pro Arg Gly Pro Gln Val Leu Pro
690 695 700

Ser Gly Lys Phe Ile Pro Gly Asn Asn Asn Ser Tyr Asp Lys Cys Arg
705 710 715 720

Arg Arg Phe Asp Leu Gly Asp Ala Glu Phe Leu Arg Tyr His Gly Met
725 730 735

Gln Gln Phe Asp Gln Ala Met Gln His Leu Glu Glu Lys Tyr Gly Phe
740 745 750

Met Thr Ser Asp His Gln Tyr Val Ser Arg Lys His Glu Glu Asp Lys
755 760 765

Val Ile Val Phe Glu Lys Gly Asp Leu Val Phe Val Phe Asn Phe His
 770 775 780
 Trp Ser Ser Ser Tyr Phe Asp Tyr Arg Val Gly Cys Leu Lys Pro Gly
 785 790 795 800
 Lys Tyr Lys Val Val Leu Asp Ser Asp Ala Gly Leu Phe Gly Gly Phe
 805 810 815
 Gly Arg Ile His His Thr Ala Glu His Val Thr Ser Asp Cys Gln His
 820 825 830
 Asp Asn Arg Pro His Ser Phe Ser Val Tyr Thr Pro Ser Arg Thr Cys
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 Val Val Tyr Ala Pro Met Asn
 850 855

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 <213> Hordeum vulgare

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 50 55 60
 Ile Pro Asp Gly Gly Ser Gly Ser Gly Thr Pro Pro Ser Ile Glu
 65 70 75 80
 Gly Ser Val Gln Phe Glu Ser Asp Asp Leu Glu Val Pro Phe Ile Asp
 85 90 95
 Asp Glu Pro Ser Leu His Asp Gly Gly Glu Asp Thr Ile Arg Ser Ser
 100 105 110
 Glu Thr Tyr Gln Val Thr Glu Glu Ile Asp Ala Glu Gly Val Ser Arg
 115 120 125
 Met Asp Lys Glu Ser Ser Thr Val Lys Lys Ile Arg Ile Val Pro Gln
 130 135 140
 Pro Gly Asn Gly Gln Gln Ile Tyr Asp Ile Asp Pro Met Leu Arg Asp
 145 150 155 160
 Phe Lys Tyr His Leu Glu Tyr Arg Tyr Ser Leu Tyr Arg Arg Ile Arg
 165 170 175
 Ser Asp Ile Asp Glu Tyr Asp Gly Gly Met Asp Val Phe Ser Arg Gly
 180 185 190

Tyr Glu Lys Phe Gly Phe Val Arg Ser Ala Glu Gly Ile Thr Tyr Arg
 195 200 205
 Glu Trp Ala Pro Gly Ala Asp Ser Ala Ala Leu Val Gly Asp Phe Asn
 210 215 220
 Asn Trp Asp Pro Thr Ala Asp His Met Ser Lys Asn Asp Leu Gly Ile
 225 230 235 240
 Trp Glu Ile Phe Leu Pro Asn Asn Ala Asp Gly Ser Pro Pro Ile Pro
 245 250 255
 His Gly Ser Arg Val Lys Val Arg Met Asp Thr Pro Ser Gly Thr Lys
 260 265 270
 Asp Ser Ile Pro Ala Trp Ile Lys Tyr Ser Val Gln Thr Pro Gly Asp
 275 280 285
 Ile Pro Tyr Asn Gly Ile Tyr Tyr Asp Pro Pro Glu Glu Glu Lys Tyr
 290 295 300
 Val Phe Lys His Pro Gln Pro Lys Arg Pro Lys Ser Leu Arg Ile Tyr
 305 310 315 320
 Glu Thr His Val Gly Met Ser Ser Pro Glu Pro Lys Ile Asn Thr Tyr
 325 330 335
 Ala Asn Phe Arg Asp Glu Val Leu Pro Arg Ile Lys Arg Leu Gly Tyr
 340 345 350
 Asn Ala Val Gln Ile Met Ala Ile Gln Glu His Ser Tyr Tyr Gly Ser
 355 360 365
 Phe Gly Tyr His Val Thr Asn Phe Phe Ala Pro Ser Ser Arg Phe Gly
 370 375 380
 Ser Pro Glu Asp Leu Lys Ser Leu Ile Asp Arg Ala His Glu Leu Gly
 385 390 395 400
 Leu Leu Val Leu Met Asp Val Val His Ser His Ala Ser Ser Asn Thr
 405 410 415
 Leu Asp Gly Leu Asn Gly Phe Asp Gly Thr Asp Thr His Tyr Phe His
 420 425 430
 Gly Gly Ser Arg Gly His His Trp Met Trp Asp Ser Arg Val Phe Asn
 435 440 445
 Tyr Gly Asn Lys Glu Val Ile Arg Phe Leu Leu Ser Asn Ala Arg Trp
 450 455 460
 Trp Leu Glu Glu Tyr Lys Phe Asp Gly Phe Arg Phe Asp Gly Ala Thr
 465 470 475 480
 Ser Met Met Tyr Thr His His Gly Leu Gln Val Thr Phe Thr Gly Ser
 485 490 495
 Tyr His Glu Tyr Phe Gly Phe Ala Thr Asp Val Asp Ala Val Val Tyr
 500 505 510

Leu Met Leu Val Asn Asp Leu Ile His Ala Leu Tyr Pro Glu Ala Val
 515 520 525
 Thr Ile Gly Glu Asp Val Ser Gly Met Pro Thr Phe Ala Leu Pro Val
 530 535 540
 Gln Val Gly Gly Val Gly Phe Asp Tyr Arg Leu His Met Ala Val Ala
 545 550 555 560
 Asp Lys Trp Ile Glu Leu Leu Lys Gly Ser Asp Glu Gly Trp Glu Met
 565 570 575
 Gly Asn Ile Val His Thr Leu Thr Asn Arg Arg Trp Leu Glu Lys Cys
 580 585 590
 Val Thr Tyr Ala Glu Ser His Asp Gln Ala Leu Val Gly Asp Lys Thr
 595 600 605
 Ile Ala Phe Trp Leu Met Asp Lys Asp Met Tyr Asp Phe Met Ala Leu
 610 615 620
 Asn Gly Pro Ser Thr Pro Asn Ile Asp Arg Gly Ile Ala Leu His Lys
 625 630 635 640
 Met Ile Arg Leu Ile Thr Met Ala Leu Gly Gly Glu Gly Tyr Leu Asn
 645 650 655
 Phe Met Gly Asn Glu Phe Gly His Pro Glu Trp Ile Asp Phe Pro Arg
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 Gly Pro Gln Val Leu Pro Thr Gly Lys Phe Ile Pro Gly Asn Asn Asn
 675 680 685
 Ser Tyr Asp Lys Cys Arg Arg Arg Phe Asp Leu Gly Asp Ala Glu Phe
 690 695 700
 Leu Arg Tyr His Gly Met Gln Gln Phe Asp Gln Ala Met Gln His Leu
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 Glu Glu Lys Tyr Gly Phe Met Thr Ser Asp His Gln Tyr Val Ser Arg
 725 730 735
 Lys His Glu Glu Asp Lys Val Ile Val Phe Glu Lys Gly Asp Leu Val
 740 745 750
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 755 760 765
 Gly Cys Leu Lys Pro Gly Lys Tyr Lys Val Val Leu Asp Ser Asp Ala
 770 775 780
 Gly Leu Phe Gly Gly Phe Gly Arg Ile His His Thr Gly Glu His Phe
 785 790 795 800
 Thr Asn Gly Cys Gln His Asp Asn Arg Pro His Ser Phe Ser Val Tyr
 805 810 815
 Thr Pro Ser Arg Thr Cys Val Val Tyr Ala Pro Met Asn
 820 825